DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: THREE PONDS, UPPER	Lake Area (ha): 4.65
Town: WARREN	Maximum depth (m): 4.1
County: Grafton	Mean depth (m): 1.4
River Basin: Merrimack	Volume (m^3) : 64000
Latitude: 43°54'30" N	Relative depth: 1.7
Longitude: 71°49'10" W	Shore configuration: 1.31
Elevation (ft): 1730	Areal water load (m/yr): 19.05
Shore length (m): 1000	Flushing rate (yr ⁻¹): 13.80
Watershed area (ha): 129.4	P retention coeff.: 0.48
% watershed ponded: 0.6	Lake type: natural

BIOLOGICAL:	14 March 1991	5 September 1990
DOM. PHYTOPLANKTON (% TOTAL) #1	SPARSE - NO DOMINANT	SYNURA 99%
#2		
#3		
PHYTOPLANKTON ABUNDANCE (cells/mL)		195.0
CHLOROPHYLL-A (µg/L)		1.26
DOM. ZOOPLANKTON (% TOTAL) #1	KERATELLA 69%	KERATELLA 55%
#2	ROTIFER SPP. 18%	
#3	NAUPLIUS LARVA 7%	
ROTIFERS/LITER	94	52
MICROCRUSTACEA/LITER	7	24
ZOOPLANKTON ABUNDANCE (#/L)	106	80
VASCULAR PLANT ABUNDANCE		Scattered
SECCHI DISK TRANSPARENCY (m)		3.1
BOTTOM DISSOLVED OXYGEN (mg/L)	4.2	1.3
BACTERIA (fecal col., #/100 ml) #1		< 10
#2	·	
#3		

SUMMER THERMAL STRATIFICATION:

weakly stratified

Depth of thermocline (m): None Hypolimnion volume (m^3) : None Anoxic volume (m^3) : None

CHEMICAL: Lake: THREE PONDS, UPPER Town: WARREN				PER	
	14 March 1991		5 September 1990		
DEPTH (m)	1.5	3.0	1.5		3.0
pH (units)	5.5	5.6	5.4		5.4
A.N.C. (Alkalinity)	2.0	1.8	0.4		0.7
NITRATE NITROGEN	0.27	0.23	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.62	0.40	0.28		0.33
TOTAL PHOSPHORUS	0.005	0.001	0.012		0.012
CONDUCTIVITY (µmhos/cm)	24.0	22.5	15.9		16.2
APPARENT COLOR (cpu)	30	33	44		48
MAGNESIUM			0.19		
CALCIUM			1.5		
SODIUM			0.6		
POTASSIUM			0.20		
CHLORIDE	< 2	< 2	< 2		< 2
SULFATE	3	3	4		4
TN : TP	178	630	23	· · · · · · · · · · · · · · · · · · ·	28
CALCITE SATURATION INDEX			6.1		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1990

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
**	2	1	0	3	Oligo.

COMMENTS:

- The entire shoreline of the pond was surrounded by woody wetlands primarily leatherleaf and sweet gale. The plants are not depicted on the plant map because they were not in the open water.
- 2. Dominant genera of wholewater phytoplankton were $\underline{\text{Cryptomonas}}$ (35%) and tiny green flagellates (25%).

THREE PONDS, UPPER WARREN Rough Bathymetric Chart DES - 1990 Sounded by Fathometer

5 ft. depth contours

FIELD DATA SHEET

LAKE: THREE PONDS, UPPER TOWN: WARREN DATE: 09/05/90 WEATHER: OVERCAST & COOL

DEPTH (M)	TEMP *DISSOLVED OXYGEN		OXYGEN SATURATION
 0.1	20.2	8.2	90 %
1.0	20.2	8.0	88 %
2.0	20.0	7.6	83 %
3.0	18.2	3.4	36 %
3.5	16.8	1.3	13 %
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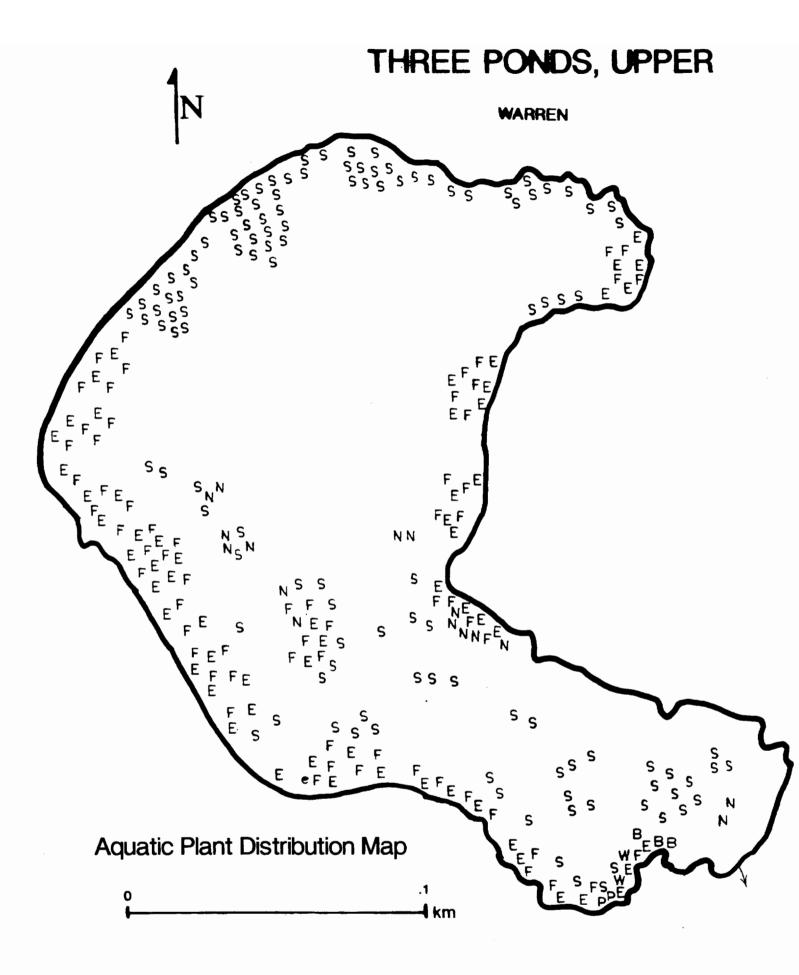
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SECCHI DISK (m): 3.1 COMMENTS:

BOTTOM DEPTH (m): 4.1

TIME: 900

*Dissolved oxygen values are in mg/L



AQUATIC PLANT SURVEY

TOWN: WARREN

DATE: 09/05/90

PLANT NAME Key ABUNDANCE GENERIC COMMON \mathbf{B} Brasenia schreberi Water shield Sparse Eriocaulon septangulare Pipewort Scattered F Nymphoides cordatum Floating heart Scattered White water lily N Nymphaea Sparse S Sparganium Bur reed Scattered W Potamogeton Pondweed Sparse Pontederia cordata Pickerelweed Sparse

OVERALL ABUNDANCE: Scattered

GENERAL OBSERVATIONS:

LAKE: THREE PONDS, UPPER

- Bladderwort covered much of the visible bottom of the pond. It was not noted on the map because of its abundance and because its full extent was not known. Its abundance was probably at least "common".
- 2. Freshwater sponges were observed growing on some rocks near the northern shoreline.